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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/797,845	03/09/2004	Donald James Lewis	FGT 338CON2	5678

36865 7590 07/13/2004

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EXAMINER

NGUYEN, TU MINH

ART UNIT	PAPER NUMBER
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3748

DATE MAILED: 07/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/797,845

Applicant(s)

LEWIS ET AL.

Examiner

Tu M. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 15-29 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 15-29 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 040804.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Objections

1. Claim 29 is objected to because the end of the claim does not have a period. Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office Action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 15-29 are rejected under 35 U.S.C. 102(e) as being anticipated by Oguma et al. (U.S. Patent 6,494,037).

Re claim 15, as shown in Figures 1, 3, 5, and 12, Oguma et al. disclose an emission control system an internal combustion engine, comprising:

- an emission control device (3) disposed in an exhaust passage of the internal combustion engine; and
- a controller (6) determining oxidant storage in the emission control device, the determined oxidant storage based on a shut down state (see Figure 3 and at least lines 11-22 of

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column 5); and during starting, adjusting fuel injection amount into the internal combustion engine based on the determined oxidant storage to take into account a change oxidant storage during the shut down state (see Figure 12).

Re claim 16, in the system of Oguma et al., the determined oxidant storage based on a shut down time (an initial low speed component of oxygen storage amount (LO2INIT) is set equal to LO2MAX even if the engine is restarted immediately after an engine stop (lines 1-6 of column 11)).

Re claim 17, in the system of Oguma et al., the determined oxidant storage is based on temperature of the emission control device (lines 11-22 of column 5).

Re claim 23, as shown in Figures 1, 3, 5, and 12, Oguma et al. disclose an emission control system of an internal combustion engine, comprising:

- an emission control device (3) disposed in an exhaust passage of the internal combustion engine; and
- a controller (6) determining an oxidant storage amount in the emission control device, the determined oxidant storage amount based on a shut down state time and temperature of the emission control device (when the engine is started, an initial high speed component of oxygen storage amount (HO2INT) is determined based on a catalyst temperature (see Figure 3 at least lines 11-22 of column 5); and an initial low speed component of oxygen storage amount (LO2INIT) is set equal to LO2MAX even if the engine is restarted immediately after an engine stop (lines 1-6 of column 11)); and adjusting a fuel injection amount into the internal combustion engine based on the determined oxidant storage during starting (see Figure 12).

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Re claims 18 and 24, in the system of Oguma et al., the determined oxidant storage amount is based on a time constant (lines 1-6 of column 11).

Re claims 19 and 25, in the system of Oguma et al., shut down state includes a vehicle shut down state.

Re claims 20 and 26, in the system of Oguma et al., the starting includes vehicle starting.

Re claims 21-22 and 27-28, in the system of Oguma et al., the determined oxidant storage is based on an oxidant state before the vehicle was turned off (the low speed component of oxygen storage amount (LO2) is set at its maximum level (LO2MAX) before the vehicle is turned off and is kept at this level at the startup of the engine).

Re claim 29, as illustrated in Figures 1, 3, 5, and 12, Oguma et al. disclose emission control system of an internal combustion engine, comprising:

- an emission control device (3) disposed in an exhaust passage the internal combustion engine; and

- a controller (6) determining an initial oxidant state of the emission control device, the initial oxidant state based on an oxidant state before shut down (the low speed component of oxygen storage amount (LO2) is set at its maximum level (LO2MAX) before the vehicle is turned off and its initial value (LO2INIT) is kept at this level at the startup of the engine); and adjusting a fuel injection amount into the internal combustion engine based on the initial oxidant state during starting (see Figure 12).

4. Claims 15-18, 22-24, and 28 are further rejected under 35 U.S.C. 102(e) as being anticipated by Poggio et al. (U.S. Patent 6,226,982).

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Re claims 15-17 and 23, as shown in Figures 1-9, Poggio et al. disclose an emission control system an internal combustion engine, comprising:

- an emission control device (6) disposed in an exhaust passage of the internal combustion engine; and
- a controller (7) determining an oxidant storage amount in the emission control device, the determined oxidant storage amount based on a shut down state time and temperature of the emission control device (from Figure 7, during a fuel shut-off state, an oxygen storage amount (OXim) is determined based on the fuel shut-off time (see Figure 2) and a temperature of the emission control device (lines 9-23 of column 6)); and adjusting a fuel injection amount into the internal combustion engine based on the determined oxidant storage during starting (of fuel injection) (see Figure 8).

Re claims 18 and 24, in the system of Poggio et al., the determined oxidant storage amount is based on a time constant (dt).

Re claims 22 and 28, in the system of Poggio et al., the determined oxidant storage is based on an oxidant state before shut down (in Figure 7, OXim is equal to OXth before the fuel shut-off state).

Prior Art

5. The IDS (PTO-1449) filed on April 8, 2004 has been considered. An initialized copy is attached hereto.

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure and consists of three patents and one patent application: Hosogai et al. (U.S. Patent

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6,092,369), Kakuyama et al. (U.S. Patent 6,314,724), Kako et al. (U.S. Patent 6,481,201), and Nagai et al. (U.S. Patent Application 2003/0046927) further disclose a state of the art.

Communication

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Tu Nguyen whose telephone number is (703) 308-2833.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Thomas E. Denion, can be reached on (703) 308-2623. The fax phone number for this group is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-1148.

Tu M. Nguyen

TMN

Tu M. Nguyen

July 11, 2004

Patent Examiner

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